

First record of a tropical affinity mullet, *Mugil curema* (Mugilidae), in a temperate southwestern Atlantic coastal lagoon

by

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RÉSUMÉ. - Premier signalement du mullet *Mugil curema* (Mugilidae), dans une lagune côtière en Atlantique sud-ouest.

La présence de six exemplaires du mullet, *Mugil curema* Valenciennes, 1836, est signalée dans la lagune côtière Mar Chiquita, Argentine (37°32'S-57°19'W). C'est le signalement le plus méridional pour l'espèce dans l'Atlantique sud-ouest et le premier dans des eaux argentines. Les caractères morphométriques et méristiques des six exemplaires sont donnés.

Key words. - Mugilidae - *Mugil curema* - ASW - Argentina - Mar Chiquita coastal lagoon - Distribution - First record.

Members of Mugilidae (mullet) are small to medium-sized fishes that have a worldwide distribution in tropical and temperate seas. They occur in shallow and brackish waters and are euryhaline, ranging from hypersaline lagoons to freshwater. They utilize estuarine nursery habitats where they feed largely on plant material obtained by grubbing through bottom detritus (Cervigón *et al.*, 1993). When they attain sexual maturity they migrate to the open sea to spawn. They are commercially exploited in all regions where they occur, constituting an important part of the human diet (Menezes, 1983). Thomson (1997) recognizes two subfamilies: Agonostominae and Mugilinae, with four and ten genera, respectively. Among Mugilinae, *Mugil*, with at least 12 nominal species (Thomson, 1997) and *Chaenomugil*, are the only members of the subfamily occurring in shallow shore-zone waters of South America.

The white mullet *Mugil curema* Valenciennes, 1836 is widespread distributed in America from Cape Cod, USA to Patos lagoon estuary, southern Brazil (García *et al.*, 2001) in the Atlantic and from Bahía Magdalena, Mexico, to Chile in the Pacific (Thomson, 1997). Several shoals of white mullets are captured by monofilament gill nets and "atarrayas" along the coast and in neritic waters of Venezuela, where c.a. 300 to 400 tonnes are caught annually in Margarita Island (Marin *et al.*, 2003). Usually it is misidentified as the so-called redeye mullet *Mugil gaimardianus* Desmarest, 1831, with which is much alike. The white mullet is easily distinguishable from other western Atlantic mugilids (Menezes, 1983).

Until recently, two nominal species were reported to be occurring in Argentina: *Mugil platanus* Günther, 1880 and *Mugil liza* Valenciennes, 1836 (Menni *et al.*, 1984; López *et al.*, 2003). However, Menezes (1983) and González Castro and Cousseau (in revision) recognized only one species, *Mugil platanus*, to be occurring from Rio de Janeiro, Brazil to Argentina.

Six specimens of *Mugil curema* were captured in Mar Chiquita coastal lagoon, Argentina (37°32'S-57°19'W) (Fig. 1) on 26 May and 16 June 2003. Mar Chiquita coastal lagoon is a temperate shal-



Figure 1. - Map of Mar Chiquita coastal lagoon, Argentina, with catch area of the six *Mugil curema*. [Carte du lagon côtier de Mar Chiquita, Argentine, et localité de capture des six *Mugil curema*.]

low estuary separated from the sea by a littoral line of dunes with an inlet joining it to the ocean. It is approximately 60 km², with a maximum length of 25 km parallel to the sea (Fig. 1). It is considered a World Reserve of Biosphere by the Coordination Council of the Man and Biosphere Program (MaB) of UNESCO.

The capture of *Mugil curema* in Mar Chiquita lagoon apparently represents the southernmost record for the species in the western Atlantic and the first record from Argentinean waters.

MATERIALS AND METHODS

The six specimens of *M. curema* were collected with two-25 m long, 1.5 m high-monofilament-gill nets with 6.2 cm mesh size set for approximately 14 h at a depth of 1.2 m. At the moment of collection the water temperature was 7.5°C (26 May) and 9°C (16 June) and salinity was 7 and 8‰, respectively. Specimen identification was based on Menezes (1983) and Thomson (1997). Meristic and nine morphometric characters were measured on the left side of each specimen (Tab. I). One specimen is preserved in the fish collection of the Instituto Nacional de Investigación y Desarrollo Pesquero as INIDEP 724 (Fig. 2).

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Table I. - Morphometric and meristic data of six *Mugil curema* captured in Mar Chiquita coastal lagoon, Argentina. [Données morphométriques et méristiques des six *Mugil curema* capturés dans le lagon côtier de Mar Chiquita, Argentine.]

	Specimens					
	1	2	3	4	5	6
Morphometrics (mm)						
Total length	260	-	274	277	274	276
Standard length	212	205	215	212	212	220
Head length	52	51	52	52	53	53
Eye diameter	13	14	14.4	15	16	14
Pectoral-fin length	37	38.5	39	38	42	41.5
Pectoral axillary scale length	16	14	8.5	14	14.5	17
Snout length	14	13	13	13	14	14.6
Prepectoral-fin length	54	51	56	53.5	55	55
Predorsal-fin length	104	100	105.5	105	109	111
Meristics						
Vertical scale rows	37	36	38	38	38	38
Transverse scales rows	13	12	12	12	11	11
Anal-fin rays	III-9	III-9	III-9	III-9	III-9	III-9
First dorsal-fin rays	IV	IV	IV	IV	IV	IV
Second dorsal-fin rays	i-8	i-8	i-8	i-8	i-8	i-8

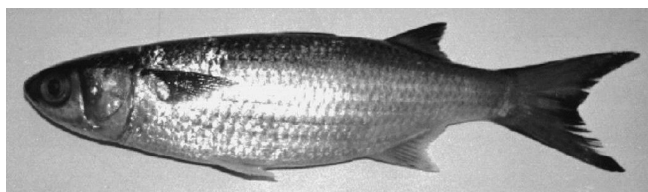


Figure 2. - *Mugil curema*, INIDEP 724, 260 mm TL, captured at Mar Chiquita coastal lagoon on 26 May 2003. [*Mugil curema* capturé dans le lagon côtier de Mar Chiquita le 26 mai 2003.]

RESULTS

Standard counts and measurements fit previous descriptions of the species, such as in Menezes (1983), Cervigón *et al.* (1993), Thomson (1997) and Harrison (2002). Fresh specimens were dark greyish dorsally, silvery greyish on sides of body and whitish ventrally. All fins are greyish except pelvics that are whitish, caudal and second dorsal fins greyish with blackish edges. A blackish blue blotch on base of pectoral fin; a prominent yellow spot present on the edge of opercle.

DISCUSSION

Mugil curema commonly inhabits inshore waters and also enters estuarine regions where it feeds and grows (Menezes, 1983; García *et al.*, 2001; Harrison, 2002). Adult *M. curema* migrate to the open sea to spawn (Cervigón *et al.*, 1993). The capability to adapt to a wide range of salinities allows this species to penetrate in brackish and freshwater lagoons.

The occasional presence of tropical or subtropical fishes in Argentinean waters is well documented in the literature (Díaz de Astarloa and Figueroa, 1995; Figueroa *et al.*, 2000). These sporadic occurrences have been attributed to the incursion of warm neritic

waters to the Argentine continental shelf (Díaz de Astarloa and Figueroa, 1995).

It seems likely that the fishes regarded here represent an occasional record of a species that commonly has tropical affinities, but that has been brought further south by the process noted above. However, one cannot discount the possibility that these fish are not vagrants, but are part of a permanent population utilizing more southerly habitats than previously documented. These questions remain unanswered until further data are available for testing this hypothesis.

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